



CASE REPORT

A Case of Fournier's Gangrene of Penis leading to Complete Loss of Penile Urethra

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ABSTRACT

Fournier's gangrene (FG) of penis is a rare but fulminant condition often associated with significant morbidity and mortality. Fournier's gangrene typically spares testis, urethra, and deep penile components in view of their deeper blood supply, which is independent of compromised fascial and subcutaneous circulation. An unusual case of a 55-year-old nondiabetic male who presented to the emergency department of MGM Medical College, Navi Mumbai, India, with acute urinary retention due to impacted urethral calculus is reported. Patient developed FG of penis with isolated involvement of corpus spongiosum, leading to loss of penile urethra. Emergency penile exploration and debridement was done followed by elective perineal urethrostomy at a later date.

Keywords: Corpus spongiosum, Fournier's gangrene of penis, Penile urethra.

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INTRODUCTION

Necrotizing fasciitis of the male genitalia and perineum is commonly referred to as FG. In approximately 95% of cases, a source of infection can be identified. Fournier's gangrene isolated to the penis is a rare occurrence due to highly vascular nature of the penis. It typically spares urethra and deep penile components in view of their deeper blood supply which is independent of compromised fascial and subcutaneous circulation. Fournier's gangrene of penis with involvement of corpus spongiosum leading to loss of penile urethra is an uncommon finding.

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CASE REPORT

A fifty-five-year-old gentleman with no known comorbidities presented to the emergency department with acute urinary retention. On examination, there was palpable tender bladder with edematous penis and tight phimosis. Dorsal slit was given. Attempt of per-urethral catheterization was made which failed. So suprapubic catheter placement was done. On investigation, X-ray abdomen and pelvis showed impacted urethral calculus measuring 16 × 12 mm. Hemogram showed hemoglobin 11 gm/dL, platelet count 77,000/mm³, and total leukocyte count 8800/mm³. His other laboratory tests, such as renal function test, liver function test, and random blood sugar were within normal limits. Urine culture was sterile. On second day of admission, patient started having fever with chills with persistent thrombocytopenia with herpes labialis-like lesions around the lips. Common medical causes of fever with thrombocytopenia like dengue, malaria, leptospirosis were ruled out and conservative management in the form of hydration, intravenous antibiotics (ceftriaxone, amikacin), and antiviral drug (tablet acyclovir) were started. On fourth day of admission, there was 3 × 2 cm warm tender fluctuant swelling on ventrolateral aspect of penis with persistent penile edema. Ultrasound of local area showed 4.5 × 3.5 × 3.5 cm echogenic collection with moving internal echoes. Corporeal bodies of penis and scrotum were normal on ultrasound study. Incision and drainage of collection was done and fluid was sent for culture and sensitivity. Postdrainage, patient was afebrile but his total leukocyte counts started rising. There was foul-smelling brownish-colored discharge from drainage site (Fig. 1) with persistent edema and evolving erythema along the penile shaft. Patient was subjected to emergency penile exploration. On exploration of penis, there was necrosis of tissues below the skin on the ventral aspect involving penile dartos fascia up to corpus spongiosum and penile urethra, thus exposing the urethral plate (Fig. 2). Adequate debridement with excision of pre-gangrenous preputial skin was done.

Fluid sent for culture grew *Streptococcus*, *Klebsiella*, and *Acinetobacter*, which were sensitive to piperacillin and meropenem. Patient was started on culture-specific antibiotics and regular dressings were done. Patient improved dramatically. His total leukocyte count and platelet count became normal. Wound was granulating



Fig. 1: Brownish discharge from incision site

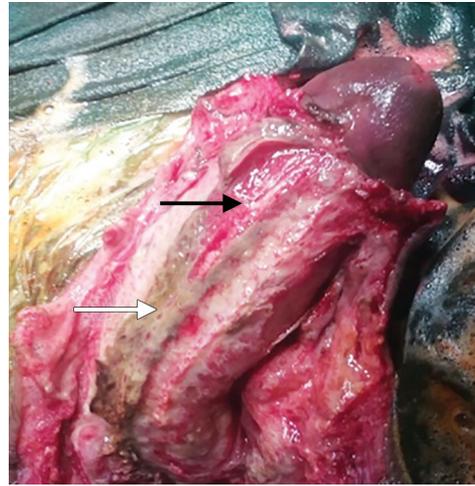


Fig. 2: Exposed urethral plate (black arrow) and necrosed corpus spongiosum and penile urethra (white arrow)

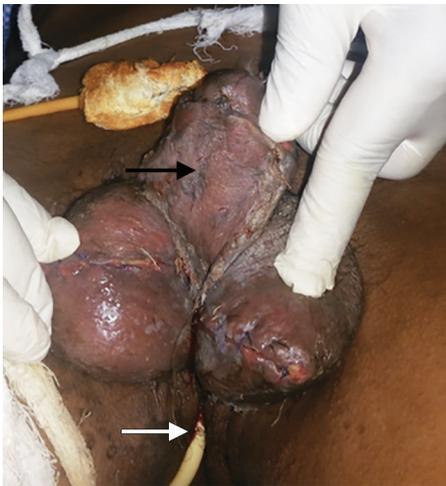


Fig. 3: Split skin graft with 100% take (black arrow) and perineal urethrostomy site with *in situ* Foley's catheter (white arrow)

and contracting. After repeated debridements and dressings the bed was finally healthy. Patient was taken up for elective perineal urethrostomy 3 weeks later as per his preference. Patient's penile urethra distal to bulb was completely destroyed and replaced by fibrocollagenous tissue. Perineal urethrostomy with bivalving of scrotum was done. Impacted urethral calculus was removed at the same time. An unexpanded, meshed, split-thickness skin graft was placed on the ventral surface of the penis. The graft dressing was changed on the 4th and 6th postoperative days, and it revealed a 100% take of the graft (Fig. 3). The postoperative period was uneventful. Patient had good urinary stream from healthy perineal urethrostomy.

DISCUSSION

Fournier's gangrene of penis is a rare entity with only a few cases reported till date.^{1,2} Our case was further unique in that there was selective destruction of corpus spongiosum and penile urethra, which in our knowledge is the first such case to be reported in the literature. A case

of elective gangrene of corpus spongiosum of idiopathic origin has been reported by Kharbach et al³ but that was dry gangrene of glans penis and corpus spongiosum which is a separate entity from FG.

Fournier's gangrene is a devastating disease with an estimated mortality of 10 to 20% depending on the severity of presentation.⁴ It is no longer considered idiopathic, as its etiology is usually an infective pathological process originating from overlying skin, urinary tract, or colorectal area. Fournier's gangrene is a polymicrobial infection, the usual organism isolated being anaerobic streptococcus synergistic with other organisms like enterobacteria, species, staphylococcal species, and bacteroides. Introduction of bacteria that initiates the infectious process leads to obliterative endarteritis causing cutaneous and subcutaneous vascular necrosis leading to localized ischemia and further bacterial proliferation, which spreads rapidly due to enzymatic digestion of fascial barriers.

Arterial vascularization of the penis is provided by three branches of the internal pudendal artery: dorsal artery, cavernous artery, and bulbourethral artery. Anatomical variations include an extrapenile alternative arterial system from the external obturator or iliac arteries. This important vasculature explains the rarity of ischemic gangrene of the penis.⁵ Penile urethra should have been spared in view of its deeper blood supply independent of compromised fascial and subcutaneous circulation. In addition, there was no prior history of trauma/hypospadias/perineal surgery which could have affected antegrade or retrograde blood supply of penile urethra.

Singam et al⁶ have reported a case wherein a patient with impacted urethral calculus with neglected symptoms progressed to development of FG of penoscrotum with subsequent gangrene of corporeal bodies and right testis, ultimately requiring total penectomy and right orchiectomy. Infected urine proximal to obstruction enters

into periurethral glands and the invading organism then spreads within corpus spongiosum.⁶ In our case, there was impacted urethral calculus, treatment of which was delayed due to persistent thrombocytopenia. Urinary extravasation of infected urine at the time of attempting per-urethral catheterization could have been the reason for this problem.

Singh et al⁵ in a review of penile gangrene cases over 10 years have reported five cases of FG of penis, out of which four required total/partial penectomy and only one patient survived. In our case, patient survived without significant physical loss because of early intervention. In FG early therapy is the key, including debridement of the entire affected shaft of the penis and other affected tissues, proximal urinary diversion, parenteral broad-spectrum antibiotics with anaerobic cover, and nutrition followed by elective definitive surgery for rehabilitation.

CONCLUSION

Fournier's gangrene of penis causing loss of penile urethra is a rare but life-threatening condition often

leading to devastating physical loss in the form of partial/total penectomy. Penis can be salvaged with early aggressive management.

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